Name _____ Class _____ Date _____

Concept Review *continued*

6. Complete the following table about different types of radioactive decay.

Type of Radioactive Decay	What happens to the atomic number?	What happens to the mass number?
Beta-particle emission	increases by 1	does not change
electron capture	decreases by 1	does not change
positron emission	decreases by 1	does not change
alpha particle emission	decreases by 2	decreases by 4

Write balanced nuclear equations for the following, and name the type of radioactive emission formed when each occurs.

7. $^{51}_{24}\text{Cr} + {}^{0}_{-1}e \rightarrow$ $^{51}_{23}\text{V}$ $+ \gamma$ emission: Gamma

8. $^{226}_{88}\text{Ra} \rightarrow$ $^{222}_{86}\text{Rn}$ $+ {}^{4}_{2}\text{He}$ emission: alpha

9. $^{239}_{93}\text{Np} \rightarrow$ $^{239}_{92}\text{U}$ $+ {}^{0}_{+1}e$ emission: Positron

10. $^{234}_{91}\text{Pa} \rightarrow$ $^{234}_{92}\text{U}$ $+ {}^{0}_{-1}e$ emission: Beta

11. $^{49}_{24}\text{Cr} \rightarrow {}^{49}_{23}\text{V} +$ $^{0}_{+1}\beta$ emission: Positron

12. $^{238}_{92}\text{U} \rightarrow {}^{234}_{90}\text{Th} +$ $^{4}_{2}\text{He}$ emission: Alpha

13. $^{214}_{83}\text{Bi} \rightarrow {}^{214}_{84}\text{Po} +$ $^{0}_{-1}\beta$ emission: Beta

Categorize each nuclear equation below by writing the correct term from the following list. Terms may be used more than once.

beta particle emission — electron capture — positron emission

alpha particle emission — annihilation of matter

14. $^{0}_{-1}e + {}^{0}_{+1}e \rightarrow 2\gamma$ type: annihilation of antimatter

15. $^{1}_{1}\text{p} \rightarrow {}^{1}_{0}\text{n} + {}^{0}_{+1}e$ type: Positron Emission

16. $^{37}_{18}\text{Ar} + {}^{0}_{-1}e \rightarrow {}^{37}_{17}\text{Cl} + \gamma$ type: Electron capture

17. $^{238}_{92}\text{U} \rightarrow {}^{234}_{90}\text{Th} + {}^{4}_{2}\text{He}$ type: Alpha emmission

18. $^{1}_{0}\text{n} \rightarrow {}^{1}_{1}\text{H} + {}^{0}_{-1}e$ type: Beta emission